

### ABSTRACT OF THE DISCLOSURE

5 A pretreatment method for element analysis of metal samples removes contaminants on the surface of the metal sample by sputtering while at least one electrode for sputtering is cooled. A pretreatment apparatus for element analysis of metal samples for performing the method includes a cathode for holding the metal sample, anodes arranged to counter the cathode for sputtering, and a pretreatment chamber to store the cathode, anodes and metal sample under an inert gas atmosphere. The apparatus includes a cooling device for cooling at least one of the electrodes. The cathode and the anodes may be interchanged in the apparatus.